```
=> d his

     (FILE 'REGISTRY' ENTERED AT 09:49:00 ON 03 MAR 2004)
                DEL HIS Y
                ACT TRAVISS2/A
               ---------
L1              STR
L2   (     47712)SEA FILE=REGISTRY SSS FUL L1
L3              STR
L4         15554 SEA FILE=REGISTRY SUB=L2 SSS FUL L3
               ---------
                ACT TRAVISS3/A
               ---------
L5              STR
L6              STR
L7   (     47712)SEA FILE=REGISTRY SSS FUL L6
L8              STR
L9   (     15554)SEA FILE=REGISTRY SUB=L7 SSS FUL L8
L10             STR
L11           14 SEA FILE=REGISTRY SUB=L9 SSS FUL L10 OR L5
              ---------
L12          315 S L4 AND 4432.3/RID
                E SPHINGOSINE/CN
L13            1 S E3
                E CHOLESTEROL/CN
L14            1 S E3
                E NITRIC OXIDE/CN
L15            1 S E3

     FILE 'CAPLUS' ENTERED AT 10:18:25 ON 03 MAR 2004
L16        39432 S L4
L17        91604 S L15 OR NITRIC OXIDE
L18       345446 S PHOSPHOGLYCER? OR GLYCEROL? OR GLYCERID? OR DIACYLGLYCER? OR
L19          136 S L16 AND L17 AND L18
L20          198 S L11 OR L12
L21           12 S L20 AND L17
L22       100538 S DRUG DELIVER?
L23        53277 S MEDICAL OR BANDAGE? OR PATCH?
L24           14 S L19 AND (L22 OR L23)
L25           15 S L19 AND 63/SX,SC
L26           18 S L24 OR L25
L27           17 S L26 NOT L21
```

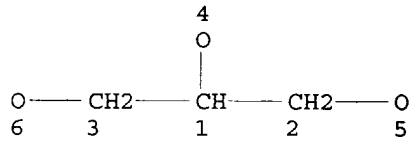
```
=> fil reg
FILE 'REGISTRY' ENTERED AT 10:28:47 ON 03 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    2 MAR 2004  HIGHEST RN 657348-90-8
DICTIONARY FILE UPDATES:   2 MAR 2004  HIGHEST RN 657348-90-8

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> d que stat l4
L1                STR

                  G1 4

S---N=O           O---N=O           N---N=O
1   @2  3         5   @6  7         8   @9  10


VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2  RC AT   1
CONNECT IS E2  RC AT   5
CONNECT IS E3  RC AT   8
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  10

STEREO ATTRIBUTES: NONE
L2  (     47712)SEA FILE=REGISTRY SSS FUL L1
L3                STR

                  G1 4

S---N=O           O---N=O           N---N=O
1   @2  3         5   @6  7         8   @9  10


VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2  RC AT   1
CONNECT IS E2  RC AT   2
CONNECT IS E2  RC AT   5
CONNECT IS E2  RC AT   6
CONNECT IS E3  RC AT   8
CONNECT IS E2  RC AT   9
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
```

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L4 15554 SEA FILE=REGISTRY SUB=L2 SSS FUL L3

100.0% PROCESSED 47712 ITERATIONS 15554 ANSWERS
SEARCH TIME: 00.00.01

=> d que stat l11
L5 STR

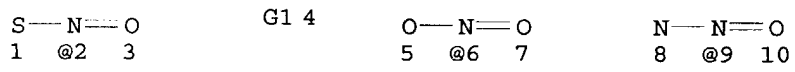


→ glycerols

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

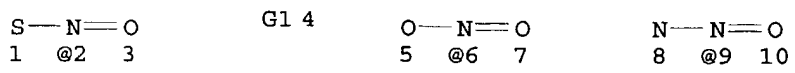
STEREO ATTRIBUTES: NONE
L6 STR



VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 1
CONNECT IS E2 RC AT 5
CONNECT IS E3 RC AT 8
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

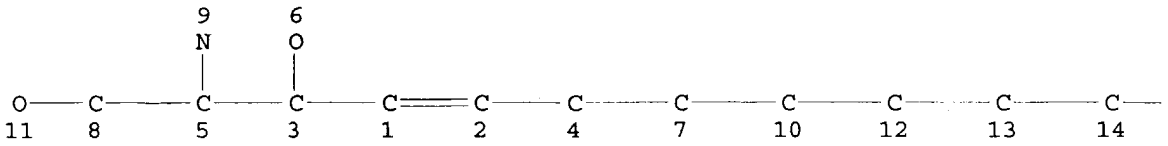
GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L7 (47712) SEA FILE=REGISTRY SSS FUL L6
L8 STR

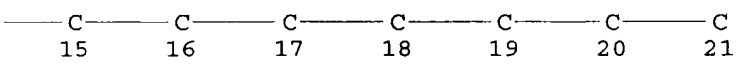


VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 1
CONNECT IS E2 RC AT 2
CONNECT IS E2 RC AT 5

```
CONNECT IS E2  RC AT   6
CONNECT IS E3  RC AT   8
CONNECT IS E2  RC AT   9
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  10

STEREO ATTRIBUTES: NONE
L9  (     15554)SEA FILE=REGISTRY SUB=L7 SSS FUL L8
L10             STR
```



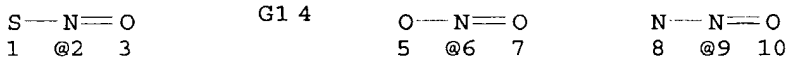
Page 1-A



Page 1-B

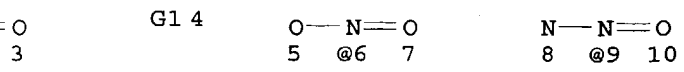
→ sphingosines

```
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  21

STEREO ATTRIBUTES: NONE
L11          14 SEA FILE=REGISTRY SUB=L9 SSS FUL L10 OR L5

100.0% PROCESSED    170 ITERATIONS                    14 ANSWERS
SEARCH TIME: 00.00.01


=> d que stat l12
L1              STR
```




```
VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2  RC AT   1
CONNECT IS E2  RC AT   5
CONNECT IS E3  RC AT   8
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  10
```

STEREO ATTRIBUTES: NONE
L2 (47712) SEA FILE=REGISTRY SSS FUL L1
L3 STR



VAR G1=2/6/9
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 1
CONNECT IS E2 RC AT 2
CONNECT IS E2 RC AT 5
CONNECT IS E2 RC AT 6
CONNECT IS E3 RC AT 8
CONNECT IS E2 RC AT 9
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L4 15554 SEA FILE=REGISTRY SUB=L2 SSS FUL L3
L12 315 SEA FILE=REGISTRY ABB=ON PLU=ON L4 AND 4432.3/RID

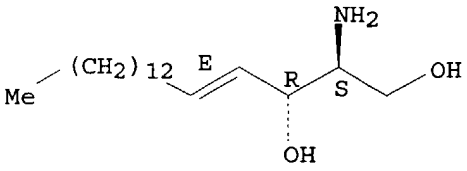
→ sterols
structural
ring system

=> d que l13; d l13
L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON SPHINGOSINE/CN

L13 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 123-78-4 REGISTRY
CN 4-Octadecene-1,3-diol, 2-amino-, (2S,3R,4E)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 4-Octadecene-1,3-diol, 2-amino-, (E)-D-erythro- (8CI)
CN 4-Octadecene-1,3-diol, 2-amino-, [R-[R*,S*-(E)]]-
OTHER NAMES:
CN (-)-D-erythro-Sphingosine
CN (2S,3R)-Sphingosine
CN (2S,3R,4E)-2-Amino-4-octadecene-1,3-diol
CN (4E)-Sphingenine
CN 4-Sphingenine
CN 4-trans-Sphingenine
CN C18-Sphingosine
CN D-(+)-erytho-4-trans-Sphingenine
CN D-erythro-C18-Sphingosine
CN D-erythro-Sphingosine
CN D-Sphingosine
CN erythro-4-Sphingenine
CN erythro-C18-Sphingosine
CN Erythrosphingosine
CN Sphingenine
CN **Sphingosine**
CN trans-4-Sphingenine
FS STEREOSEARCH
DR 45261-75-4
MF C18 H37 N O2

CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIUDB, IPA, MEDLINE, MRCK*, NAPRALERT, PROMT, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry. Rotation (-).
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

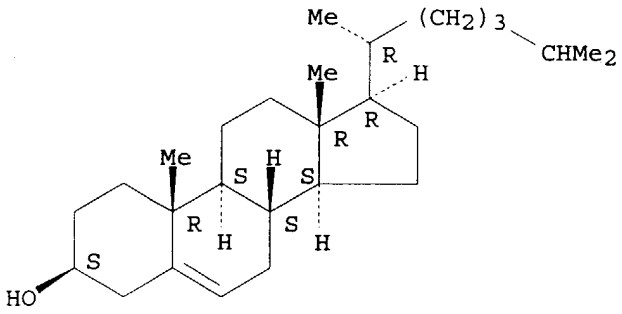
1061 REFERENCES IN FILE CA (1907 TO DATE)
60 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1061 REFERENCES IN FILE CAPLUS (1907 TO DATE)
19 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d que l14;d l14
L14 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHOLESTEROL/CN

L14 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 57-88-5 REGISTRY
CN Cholest-5-en-3-ol (3β)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Cholesterol (8CI)**
OTHER NAMES:
CN (-)-Cholesterol
CN Δ5-Cholesten-3β-ol
CN 3β-Hydroxycholest-5-ene
CN 5:6-Cholesten-3β-ol
CN Cholest-5-en-3β-ol
CN Cholesterin
CN Cholesteryl alcohol
CN Dythol
CN Lidinit
CN Lidinite
CN NSC 8798
CN Provitamin D
FS STEREOSEARCH
DR 80356-33-8, 209124-38-9, 218965-24-3, 262418-13-3, 378185-03-6
MF C27 H46 O
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*,

DIOGENES, DIPPR*, DRUGU, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

101396 REFERENCES IN FILE CA (1907 TO DATE)
8746 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
101528 REFERENCES IN FILE CAPLUS (1907 TO DATE)
15 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d que l15; d l15
L15 1 SEA FILE=REGISTRY ABB=ON PLU=ON "NITRIC OXIDE"/CN

L15 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 10102-43-9 REGISTRY
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Amidogen, oxo-
CN INOmax
CN **Nitric oxide**
CN Nitric oxide (NO)
CN Nitric oxide trimer
CN Nitrogen monooxide
CN Nitrogen monoxide
CN Nitrogen oxide (N4O4)
CN Nitrogen(II) oxide
CN Nitrosyl radical
CN OHM 11771
DR 53851-19-7, 51005-20-0, 51005-21-1, 90452-29-2
MF N O
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT,

ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSPATENTS, IMSRESEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

N=== O

78192 REFERENCES IN FILE CA (1907 TO DATE)
458 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
78381 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> fil caplus
FILE 'CAPLUS' ENTERED AT 10:30:00 ON 03 MAR 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 3 Mar 2004 VOL 140 ISS 10
FILE LAST UPDATED: 2 Mar 2004 (20040302/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que nos l21
L1 STR
L2 (47712) SEA FILE=REGISTRY SSS FUL L1
L3 STR
L4 15554 SEA FILE=REGISTRY SUB=L2 SSS FUL L3
L5 STR
L6 STR
L7 (47712) SEA FILE=REGISTRY SSS FUL L6
L8 STR
L9 (15554) SEA FILE=REGISTRY SUB=L7 SSS FUL L8
L10 STR
L11 14 SEA FILE=REGISTRY SUB=L9 SSS FUL L10 OR L5
L12 315 SEA FILE=REGISTRY ABB=ON PLU=ON L4 AND 4432.3/RID
L15 1 SEA FILE=REGISTRY ABB=ON PLU=ON "NITRIC OXIDE"/CN
L17 91604 SEA FILE=CAPLUS ABB=ON PLU=ON L15 OR NITRIC OXIDE/OBI
L20 198 SEA FILE=CAPLUS ABB=ON PLU=ON L11 OR L12
L21 12 SEA FILE=CAPLUS ABB=ON PLU=ON L20 AND L17